

Zor, E., Sandvol, E., Gurbuz, C., Turkelli, N., Seber, D., and Barazangi, M., *The crustal structure of the East Anatolian plateau (Turkey) from receiver functions*. Geophysical Research Letters, 30(24), 2003.

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**Abstract:**

The crustal structure of the Anatolian plateau in Eastern Turkey is investigated using receiver functions obtained from the teleseismic recordings of a 29 broadband PASSCAL temporary network, i.e., the Eastern Turkey Seismic Experiment [ETSE]. The S-wave velocity structure was estimated from the stacked receiver functions by performing a 6-plane layered grid search scheme in order to model the first order features in the receiver functions with minimum trade-off. We found no significant crustal root beneath the western portion of the network, but there is some evidence of crustal thickening in the northern portion of the network. We found an average crustal thickness of 45 km and an average crustal shear velocity of 3.7 km/s for the entire eastern Anatolian plateau. Within the Anatolian plateau we found evidence of a prominent low velocity zone where the crust thickness is approximately 46 km. These results suggests that the 2 km high topography across the Anatolian plateau is dynamically supported because most of the plateau appears to be isostatically under-compensated. Also, there appears to be a region of thin crust at the easternmost edge of the Anatolian plateau that may be a relic from the accretion of island arcs to the Eurasian plate.

**Figure 1.** Maps showing (a) the Moho depth variation in km (contour interval is 1 km) and (b) the average crustal shear velocity in km/s (contour interval is 0.04 km/s) for each station. Black squares indicate stations which may have a low velocity layer. Red lines indicate the three plate boundaries.

